

What is claimed is:

1. A switching power supply, comprising a switching element for performing a switching operation by turning on/off direct-current voltage inputted to a primary side of a transformer, a control circuit for controlling the switching operation according to a change in direct-current output voltage generated on a secondary side via the transformer by the switching operation, and a transmission circuit for transmitting current proportionate to the direct-current output voltage to the control circuit so as to permit the control circuit to control the switching operation, the switching operation being controlled by the control circuit to stabilize the direct-current output voltage, wherein

the control circuit comprises:

an IV converter that is connected to the control terminal of the control circuit and converts, into voltage, current of the control terminal from the transmission circuit;

a comparator for determining a normal load operation or a light load operation for the switching operation depending upon a converted voltage level of the IV converter; and

a standby detection circuit for stopping the switching operation when the converted voltage level of the IV converter is higher than a standby detection upper limit voltage that is set to be higher than a predetermined reference voltage according to the light load operation, and resuming the switching operation when the stopping makes the converted voltage level of the IV converter lower than a standby detection lower limit voltage that is reset to be lower than the

predetermined reference voltage according to the stopping of the switching operation.

2. The switching power supply according to claim 1, wherein the standby detection circuit comprises a reference voltage source for outputting the standby detection upper limit voltage or the standby detection lower limit voltage according to an operating state of the load, the upper limit voltage or lower limit voltage being compared with the converted voltage level of the IV converter, and a standby detection comparator for comparing an output voltage of the reference voltage source and a converted voltage of the IV converter, the standby detection circuit changing the output voltage of the reference voltage source into the standby detection upper limit voltage and the standby detection lower limit voltage according to an output signal of the standby detection comparator.

3. The switching power supply according to claim 2, further comprising a detected voltage changing terminal for arbitrarily setting an output voltage from the reference voltage source of the standby detection circuit.

4. The switching power supply according to claim 3, further comprising a resistor connecting the detected voltage changing terminal and a ground.

5. The switching power supply according to any one of claims 1 to 4, wherein the switching element and the control circuit are integrated on the same semiconductor substrate as a one-chip semiconductor device.